

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. :  
Applicant : VERHO et al.  
Filed : November 24, 2003  
TC/A.U. :  
Examiner :  
  
**Docket No.** : **2530-120**  
Customer No. : 06449  
Confirmation No. :  
:

**INFORMATION DISCLOSURE STATEMENT**

Director of the United States Patent  
and Trademark Office  
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Dear Sir:

The material listed on the accompanying form PTO-1449, from the parent application having U.S. serial Number **10/257,821**, is cited in compliance with the provisions of 37 C.F.R. §§ 1.56, 1.97 and 1.98. Applicants respectfully request that the Examiner consider these references with respect to the present application. Copies of these references can be found with the parent application and, accordingly, will not be resubmitted unless requested by the Examiner.

Respectfully submitted,

By   
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FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE  
(Modified) PATENT AND TRADEMARK OFFICEINFORMATION DISCLOSURE  
STATEMENT BY APPLICANT(Use several sheets if necessary)  
(37 CFR 1.98(b))

ATTY. DOCKET NO. | SERIAL NO.

Inventors: VERHO et al.

Attorney Docket: 2530-120

A copy of this Information Disclosure Statement is intended for the attached application submitted herewith

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	ISSUE DATE	PATENTEE	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

## FOREIGN PATENT DOCUMENTS

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						YES	NO

## OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)

1	Amore, R. et al. (1991) "Cloning and Expression in <i>Saccharomyces cerevisiae</i> of the NAD(P)H-dependent Xylose Reductase-Encoding Gene (XYL1) from the Xylose Assimilating Yeast <i>Pichia stipitis</i> ," <i>Gene</i> 109, 89-97.
2	Billard, P. et al. (1995) "Isolation and Characterisation of the Gene Encoding Xylose Reductase From <i>Kluyveromyces lactis</i> ," <i>Gene</i> 162, 93-97.
3	Blomqvist, K. et al. (1991) "Chromosomal Integration and Expression of Two Bacterial Alpha-acetolactate Decarboxylase Genes in Brewer's Yeast," <i>Appl. Environ. Microbiology</i> 57, 2796-2803.
4	Bolen, P.L. et al. (1996) "Sequence and Analysis of an Aldose Reductase Gene From Xylose Fermenting Yeast <i>Pachysolen tannophilus</i> ," <i>Yeast</i> 12, 1367-1375.
5	Chan, E. et al. (1989) "Metabolism of D-xylose in <i>Schizosaccharomyces pombe</i> Cloned With a Xylose Isomerase Gene," <i>Appl. Microbiology &amp; Biotechnology</i> 31, 524-528.
6	Chiang, C. et al. (1960) "A new pathway of pentose metabolism," <i>Biochem. Biophys. Res. Commun.</i> 3, 554-559.
7	Chiang, C. et al. (1959) "D-xylose metabolism by cell free extracts of <i>Penicillium chrysogenum</i> ," <i>Biochem. Biophys. Acta</i> 35, 454-463.
8	Doten, R.C. et al. (1985) "Characterisation of Xylitol-utilizing mutants of <i>Erwinia uredovora</i> ," <i>Journal of Bacteriology</i> 161, 529-533.
9	Gietz, D. et al. (1992) "Improved method for high efficiency transformation of intact yeast cells," <i>Nucleic Acids Res.</i> Volume 20, No. 6, 1425.

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10	Hacker, B. et al. (1999) "Xylose utilisation: cloning and characterisation of the xylose reductase from <i>Candida tenius</i> ," <i>Biol. Chem.</i> 380, 1395-1403.
11	Henderson, R.C. et al. (1985) "The transformation of brewing yeasts with a plasmid containing the gene for copper resistance," <i>Curr. Genetics</i> 9, 133-38
12	Hickman, J. et al. (1959) "A sensitive and stereospecific enzymatic assay for xylulose," <i>Journal Biol. Chem.</i> 234, 758-761.
13	Ho, N. et al. (1989) "Cloning of yeast Xylulokinase gene by complementation of <i>E. coli</i> and yeast mutations," <i>Enzyme Microb. Technol.</i> 11, 417-421.
14	Kotter, P. et al. (1990) "Isolation and characterisation of the <i>Pichia stipitis</i> xylitol dehydrogenase gene, XYL2, and construction of a xylulose-utilizing <i>Saccharomyces cerevisiae</i> transformant," <i>Curr. Genetics</i> 18, 493-500
15	Kristo, P. et al. (1996) "Protein purification and cloning and characterization of the cDNA and gene for xylose isomerase of barley," <i>Eur. J. Biochem.</i> 237, 240-246.
16	Kuhn, A. et al. (1995) "Purification and partial characterisation of an aldo-keto reductase from <i>Saccharomyces cerevisiae</i> ," <i>Applied and Environmental Microbiology</i> , Vol. 61, No. 4, 1580-1585.
17	McMillan, J.D. et al. (1994) "Arabinose utilisation by xylose fermenting yeasts and fungi," <i>Appl. Biochem. Biotechnol.</i> Vol. 45/46, 569-584.
18	Mandels, M. et al. (1969) "The production of cellulases," <i>Adv. Chem. Ser.</i> 95, 391-414.

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19	Mellor, J. et al. (1983) "Efficient Synthesis of Enzymatically Active Calf Chymosin in <i>Saccharomyces cerevisiae</i> ," <i>Gene</i> 24, 1-14.
20	Moes, C.J. et al. (1996) "Cloning and Expression of the clostridium thermo-sulfurogenes d-xylose isomerase gene (xylA) in <i>Saccharomyces cerevisiae</i> ," <i>Biotechnology Letters</i> , Vol. 18, No. 3, 269-274.
21	Margolles-Clark, E. et al. (1996) "Cloning of genes encoding alpha-L-arabinofuranosidase and beta-xylosidase from <i>Trichoderma reesei</i> by expression in <i>Saccharomyces cerevisiae</i> ," <i>Applied and Environmental Microbiology</i> , Vol. 62, No. 10, 3840-46.
22	Richard, P. et al. (1999) "Evidence that gene YLR070c of <i>Saccharomyces cerevisiae</i> encodes a xylitol dehydrogenase," <i>FEBS Letters</i> 457, 135-138.
23	Richard, P. et al. (2000) "The role of xylulokinase in <i>Saccharomyces cerevisiae</i> xylulose catabolism," <i>FEMS Microbiol. Letters</i> 190, 39-43.
24	Sarthy, A. et al. (1987) "Expression of the <i>Escherichia coli</i> xylose isomerase gene in <i>Saccharomyces cerevisiae</i> ," <i>Appl. Environ. Microbiol.</i> Vol. 53, No. 9, 1996-2000
25	Schrunder, J. et al. (1996) "Extranuclear expression of the bacterial xylose isomerase (xylA) and the UDP-glucose dehydrogenase (hasB) genes in yeast with <i>Kluyveromyces lactis</i> linear killer plasmids as vectors," <i>Current Microbiology</i> , Vol. 33, 323-330.
26	Shaw, D.R. (1956) "Polyol dehydrogenases. 3. Galactitol dehydrogenase and D-iditol dehydrogenase," <i>Biochem. J.</i> 64, 394-405.

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	9 8 5 0 5 2 4	11/12/98	PCT			
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	1 "Characterization and Complementation of a <i>Pichia Stipitis</i> Mutant Unable to Grow on D-xylose or L-arabinose," by N.Q. Shi et al., National Library of Medicine, Medline Accession No. 10849789, <i>Applied Biochemistry and Biotechnology</i> , Spring 2000, 84-86:201-16.
	2 "Expression of <i>E. coli</i> araBAD Operon Encoding Enzymes for Metabolizing L-arabinose in <i>Saccharomyces cerevisiae</i> ," by M. Sedlak and N. Ho, <i>Enzyme and Microbial Technology</i> , Volume 28, 2001, pp. 16-24.
	3 "Extracellular Arabinases in <i>Aspergillus Nidulans</i> : The Effect of Different cre Mutations on Enzyme Levels," by P. van der Veen et al., <i>Archives of Microbiology</i> , Volume 162, 1994, pp. 433-440.
	4 "Isolation and Characterization of Two Xylitol Dehydrogenases From <i>Aspergillus Niger</i> ," by C.F.B. Witteveen et al., <i>Microbiology</i> , Volume 140, 1994, pp. 1679-1685.
	5 "L-arabinose and D-xylose Catabolism in <i>Aspergillus Niger</i> ," by C.F.B. Witteveen et al., <i>Journal of General Microbiology</i> , Volume 135, 1989, pp. 2163-2171.
	6 "Molecular Cloning, Expression and Tissue Distribution of Hamster Diacetyl Reductase. Identity With L-xylulose Reductase," by S. Ishikura et al., <i>Chemico-Biological Interactions</i> , Vol. 130-32, January 30, 2001, pp.879-89.
	7 "Screening for L-arabinose Fermenting Yeasts," by B.S. Dien et al., <i>Applied Biochemistry &amp; Biotechnology</i> , Vol. 57/58, 1996, pp. 233-240.

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